

Rule for Factoring a Perfect-Square Trinomial

$$a^2 + 2ab + b^2 = (a + b)(a + b)$$

$$\begin{aligned} x^2 + 8x + 16 \\ a^2 + 2ab + b^2 \\ b^2 = 16 \text{ \& } a^2 = (1x)^2 \\ b = 4 \text{ \& } a = 1x \\ (x + 4)(x + 4) \end{aligned}$$

$$\begin{aligned} x^2 + 6x + 9 \\ a^2 + 2ab + b^2 \\ b^2 = 9 \text{ \& } a^2 = (1x)^2 \\ b = 3 \text{ \& } a = 1x \\ (x + 3)(x + 3) \end{aligned}$$

$$\begin{aligned} 9x^2 + 24x + 16 \\ a^2 + 2ab + b^2 \\ b^2 = 16 \text{ \& } a^2 = (3x)^2 \\ b = 4 \text{ \& } a = 3x \\ (3x + 4)(3x + 4) \end{aligned}$$

$\begin{aligned} x^2 + 16x + 64 \\ a^2 + 2ab + b^2 \\ 1. \quad b^2 = \underline{\hspace{2cm}} \text{ \& } a^2 = (\underline{\hspace{2cm}})^2 \\ b = \underline{\hspace{2cm}} \text{ \& } a = \underline{\hspace{2cm}} \\ (x + \underline{\hspace{2cm}})(x + \underline{\hspace{2cm}}) \end{aligned}$	$2. \quad x^2 + 12x + 36$
$\begin{aligned} 25x^2 + 20x + 4 \\ a^2 + 2ab + b^2 \\ 3. \quad b^2 = \underline{\hspace{2cm}} \text{ \& } a^2 = (\underline{\hspace{2cm}})^2 \\ b = \underline{\hspace{2cm}} \text{ \& } a = \underline{\hspace{2cm}} \\ (x + \underline{\hspace{2cm}})(x + \underline{\hspace{2cm}}) \end{aligned}$	$4. \quad x^2 + 22x + 121$

$$a^2 - 2ab + b^2 = (a - b)(a - b)$$

$$\begin{aligned} x^2 - 10x + 25 \\ a^2 + 2ab + b^2 \\ b^2 = 25 \text{ \& } a^2 = (1x)^2 \\ b = 5 \text{ \& } a = 1x \\ (x - 5)(x - 5) \end{aligned}$$

$$\begin{aligned} 4x^2 - 20x + 25 \\ a^2 + 2ab + b^2 \\ b^2 = 25 \text{ \& } a^2 = (2x)^2 \\ b = 5 \text{ \& } a = 2x \\ (2x - 5)(2x - 5) \end{aligned}$$

$$\begin{aligned} x^2 - 20x + 10 \\ a^2 + 2ab + b^2 \\ b^2 = \underline{\hspace{2cm}} \text{ \& } a^2 = (\underline{\hspace{2cm}})^2 \\ b = \underline{\hspace{2cm}} \text{ \& } a = \underline{\hspace{2cm}} \\ (x - \underline{\hspace{2cm}})(x - \underline{\hspace{2cm}}) \end{aligned}$$

$$a^2 - 2ab + b^2 = (a - b)(a - b)$$

$x^2 - 10x + 25$ $a^2 + 2ab + b^2$ <p>1. $b^2 = \underline{\hspace{1cm}}$ & $a^2 = (\underline{\hspace{1cm}})^2$ $b = \underline{\hspace{1cm}}$ & $a = \underline{\hspace{1cm}}$ $(x - \underline{\hspace{1cm}})(x - \underline{\hspace{1cm}})$</p>	<p>2. $4x^2 - 20x + 25$</p>
$25x^2 - 10x + 1$ $a^2 + 2ab + b^2$ <p>3. $b^2 = \underline{\hspace{1cm}}$ & $a^2 = (\underline{\hspace{1cm}})^2$ $b = \underline{\hspace{1cm}}$ & $a = \underline{\hspace{1cm}}$ $(x - \underline{\hspace{1cm}})(x - \underline{\hspace{1cm}})$</p>	<p>4. $4x^2 - 12x + 9$</p>

Rule for the Difference of Two Squares

$$a^2 - b^2 = (a + b)(a - b)$$

$$4x^2 - 25$$

$$a^2 - b^2$$

$$a^2 = (2x)^2 \text{ \& } b^2 = 25$$

$$a = 2x \text{ \& } b = 5$$

$$(2x + 5)(2x - 5)$$

$$25x^2 - 9$$

$$a^2 - b^2$$

$$a^2 = (5x)^2 \text{ \& } b^2 = 9$$

$$a = 5x \text{ \& } b = 3$$

$$(5x + 3)(5x - 3)$$

$x^2 - 36$ $a^2 - b^2$ <p>3. $a^2 = (\underline{\hspace{1cm}})^2 \text{ \& } b^2 = \underline{\hspace{1cm}}$ $a = \underline{\hspace{1cm}} \text{ \& } b = \underline{\hspace{1cm}}$ $(x + \underline{\hspace{1cm}})(x - \underline{\hspace{1cm}})$</p>	$16x^2 - 25$ $a^2 - b^2$ <p>4. $a^2 = (\underline{\hspace{1cm}})^2 \text{ \& } b^2 = \underline{\hspace{1cm}}$ $a = \underline{\hspace{1cm}} \text{ \& } b = \underline{\hspace{1cm}}$ $(\underline{\hspace{1cm}} + \underline{\hspace{1cm}})(\underline{\hspace{1cm}} - \underline{\hspace{1cm}})$</p>
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